On some properties of solutions to a class of parabolic systems

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Abstract. Parabolic partial differential equations and systems play a central role in modern mathematical modeling, describing diffusion, transport, reaction, and interaction processes across many areas of science. In recent decades, major progress has been made in understanding the qualitative behavior of their solutions from regularity and stability to pattern formation, blow-up phenomena, long-term dynamics, and the development of complex spatio-temporal structures. In this talk we focus on a new class of Keller Segel models, which presents a limited flux and an optimal transport of cells density according to chemical signal density.